

U.S. Dep't. of Commerce / NMAO / NOAA / Aircraft Operations Center

FLT ID: 090814N	From: TBPB	To: TBPB
FLT #: 09-043	Blk In: 0312 Z	End Time: 0307 Z
ETD: 2000 Z	Blk Out: 1940 Z	T/O Time: 1959 Z
ETE: 8	Total Blk: 7hrs 32min (7.5)	Total Flt: 7hrs 8min (7.1)
Sponsoring Org: HRD	Program: SAL	Purpose:

AOC Flight Crew

Aircraft Commander: Longenecker	Data System: Hill
Co-Pilot: Twining	Avaps: Greene
Navigator: 1	System Engineer: C. Lynch
Flight Eng: 1	AA: HRD Sellwood
Flt Director: Flaherty, Williams	AA: HRD Dunion
Avionics:	Crew Chief:

Participating Scientists, Visitors, & Add'l Aircrew on back.

Total # of people on board:

of people listed on back:

	A/C - Takeoff	Wx Station - Takeoff	A/C - Land	Wx Station - Land
Pressure	PS1 1005mb PS2 1006mb	Q1013	PS1 1006mb PS2 1007mb	Q1013

ATIS - Takeoff

ATIS - Land

Data Source	Number	Data Disposition / Date / Quality / File Name(s)
Flight Level Tapes	2	
Radar Tapes	0	
Dropsondes	20	Good: 19 Bad: 1 Sent: 19 19
AXBT	0	

List other data sources on back in Remarks section.

Remarks (Storm Name, Mission ID, Recco Times, Fix Times)

Recco

Times:

Fix #

Fix Time

Storm Name:

Mission ID:

WKWKA TD2

U.S. Dep't. of Commerce / NMAO / NOAA / Aircraft Operations Center

[illegible]

Remarks:

NOAA G-IV N49RF
HUR-09
14 Aug 2009, HRD TD2



Flight ID: 090814n2

<u>Sensor or system</u>	<u>Number or Name</u>
Accelerometer	ACINS
Altitude	PALT
Attack Angle	AKRD1
Dew Point Probe	DPR
Dynamic Pressure	QC2M
Geopotential Altitude	GPGALT
Inertial Selected	VEW, VNS
Static Pressure	PS2M
Slip Angle	SSRD1
Temperature Probe	AT3/TT3
True Air Speed	TAS2
Constants File	49cal092
Project Directory	/proj/905

<u>Local Met Data:</u>	<u>Takeoff (1959Z)</u>	<u>Landing (0307Z)</u>
Aircraft Static Pressure	1006 mb	1007 mb
Tower Pressure (corrected)	Q1013	Q1013

Notes:

Data Gap from 011312Z – 011532Z

HGALT spikes from 2048-2054Z. Chose GPGALT.

Inertial Reference System 2 (IRS2) or _PITR all had data spikes from 215959-220003Z and at 015959-020002Z. Chose IRS1.

all val's go to 0

GSF has larger amplitude than all other Ground Speeds, but GSF_PITR had spikes. Chose GSF.

There is about a 2mb difference between PS1M and PS2M. From test flights comparing aircraft data to dropsonde data PS2M has been closer to representing the actual atmosphere.

~~There were periods where the dewpoint temperature exceeded the ambient temperature resulting in RH values > 100%. This was likely due to passing through a cloud layer, a wet-bulb effect on the total temperature sensor, and/or an artificial warming of the dewpoint sensor as it tried to burn off excess moisture. Corrections were not made to the data.~~

All other instruments worked optimally during the flight

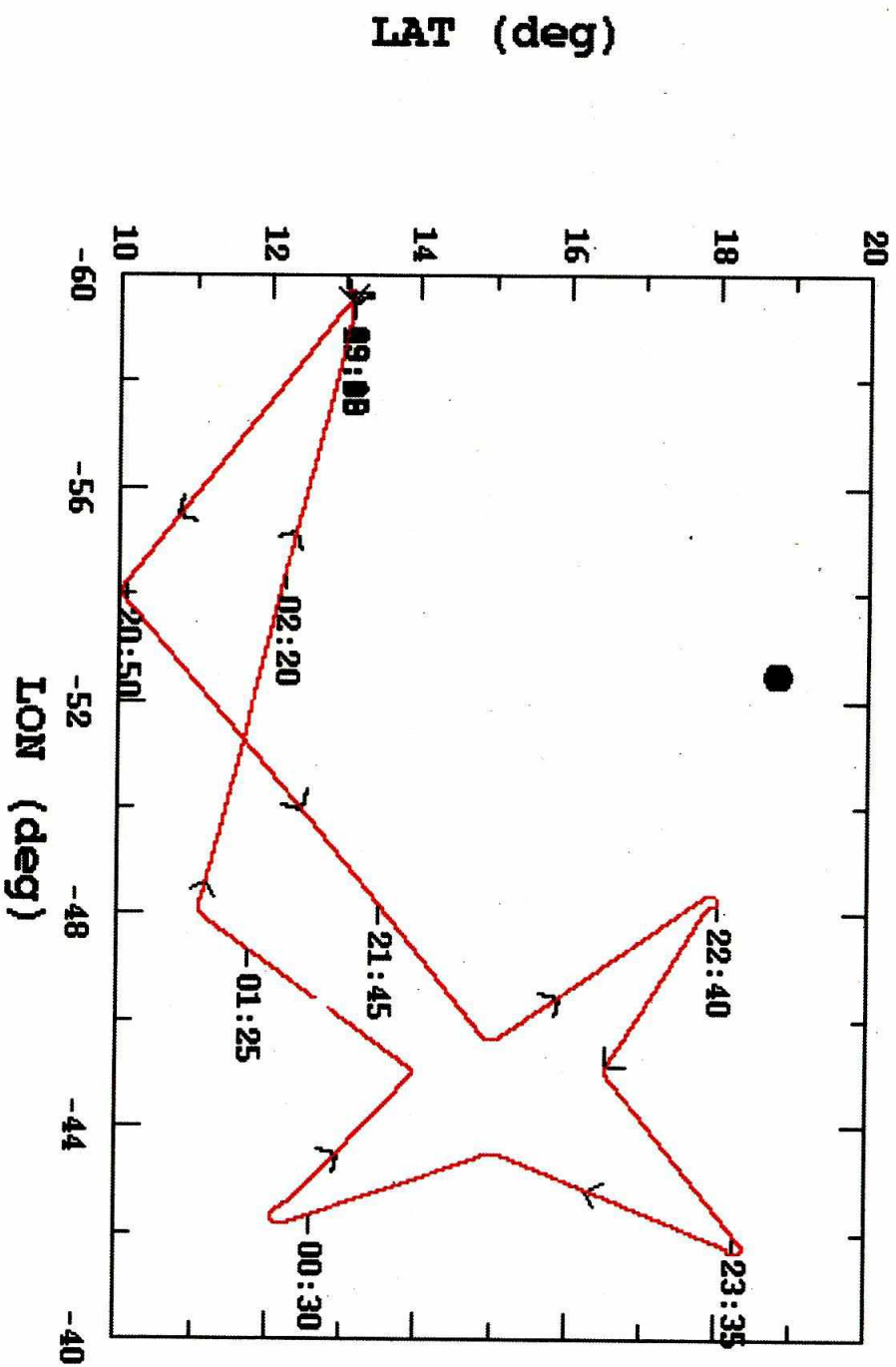
20 dropsondes launched: 19 good, 1 bad

All 19 good drops successfully sent to NCEP and ingested into the 15/00Z model run.

Flight Director:
Phone #:

Jess Williams/Paul Flaherty
(813) 828-3310 ext. 3140

Hurricane_2009, Flight #090814n2 HRD ANA, 19:59Z - 0307Z



LAT (deg), 1 s/sec
 LON (deg), 1 s/sec
 mean 13.60
 sigma 2.15
 min 10.03
 max 18.36
 -50.65
 -59.69
 -41.59

Flight: 090814n2

Inertial Altitude

- ☒ ALT (m)
IRS Baro-Inertial
☒ Altitude
ALT_PITR (m) - 22+022 spikes
IRS Baro-Inertial
☒ Altitude
ADCBALCALT (m)
DADC Baro Corrected
Altitude

GPS Altitude

- ☒ GHALT_SG1 (m)
Honeywell GPS Altitude
(MSL)
☒ GHALT_SG2 (m)
Honeywell GPS Altitude
(MSL)
☒ GPALT (m)
Collins GPS Altitude
(MSL)

Pressure Altitude

- ☐ PALT (m)
☒ NACA Pressure Altitude
PALTF (feet)
☒ NACA Pressure Altitude
ADCPALT (m)
DADC Pressure Altitude

Radar Altitude

- ☒ HGM232 (m) - 5011665
Geometric (Radar)
Altitude

D-Value

- ☒ DVALU (m)
D-VALUE
(HGME - PALT)

Geopotential Altitude

- ☒ GPGALT (m)
Collins GPS
Geopotential Altitude
☒ HGALT (m) - spikes
APN-232 Radar
Geopotential Altitude

Pitch vs Alt

- ☒ PITCH (deg)
☒ Aircraft Pitch Angle

☐ PITCH_PITR (deg)
Aircraft Pitch Angle

Roll vs Hdg

- ☒ ROLL (deg)
☒ Aircraft Roll Angle

☐ ROLL_PITR (deg)
Aircraft Roll Angle

Heading vs Trk

- ☒ THDG (deg)
IRS1

☒ THDG_PITR (deg)
IRS2 - spikes @ 22+022

Drift Angles

- ☒ AOCD A (deg)
Computed Drift Angle

☒ AOCD A_PITR (deg) - spikes @ 22+022
Computed Drift Angle

☒ DRFTA (deg)
IRS1 Drift Angle

☐ DRFTA_PITR (deg)
IRS2 Drift Angle

Track vs DA

- ☐ AOCTK (deg)
Computed Aircraft Track
Angle from IRS1
☒ AOCTK_PITR (deg) - spikes @ 22+022
Computed Aircraft Track
Angle from IRS2
☒ TKAT (deg)
IRS1 Track Angle

☐ TKAT_PITR (deg) -
IRS2 Track Angle

☒ TKAR (deg/s)
IRS1 Aircraft Track
Angle Rate
☒ TKAR_PITR (deg/s)
IRS2 Aircraft Track
Angle Rate

Select the following variable references:

1 ATTACK	AKRD(1, 2)	2 QCX	QC(1, 2)
3 ATX	AT(1, 2, 3, 4)	2 QCXC	QC(1, 2)
R DPX	DP(L, R)	1 SSLIP	SSRD(1, 2)
R DPXC	DP(L, R)C	2 TASX	TAS(1, 2)
GPG DVALU	(HG, GPG)ALT	3 TTX	TT(1, 2, 3, 4)
2 PSX	PS(1, 2)M	1 WI	IRS 1 or 2
2 PSXC	PS(1, 2)C	1 XLATC	IRS 1 or 2

☒ Print Trackline

Note: IRS = Inertial Reference System.

Equivalent to INS on P-3's. _PITR denotes IRS#2.

LAT/LON - PITR (IRS)
have spikes use ①

Flight Group

Flight:

Latitudes

____ GHLATF_SG1 (deg)
Honeywell GPS
Latitude, Fine
____ GHLATF_SG2 (deg)
Honeywell GPS
Latitude, Fine
____ GHLAT_SG1 (deg)
Honeywell GPS Latitude
____ GHLAT_SG2 (deg)
Honeywell GPS Latitude

____ GPLAT (deg)
Collins GPS Latitude
____ LAT (deg)
IRS1 Latitude
____ LAT_PITR (deg)
IRS2 Latitude

____ XLATC (deg)
GPS-Corrected Inertial
Latitude

Longitudes

____ GHLONF_SG1 (deg)
Honeywell GPS
Longitude, Fine
____ GHLONF_SG2 (deg)
Honeywell GPS
Longitude, Fine
____ GHLON_SG1 (deg)
Honeywell GPS
Longitude
____ GHLON_SG2 (deg)
Honeywell GPS
Longitude

____ GPLON (deg)
Collins GPS Longitude
____ LON (deg)
IRS1 Longitude
____ LON_PITR (deg)
IRS2 Longitude

____ XLONC (deg)
GPS-Corrected Inertial
Longitude

GPS Differences
____ GDIF1
Position Difference
(Collins - IRS1)
____ GDIF2
Position Difference
(Collins - IRS2)

Compare GPS lat/lon to
inertial lat/lon to see which
inertial did better during the
flight. Compare their
differences.

HDOP

____ GHHDOP_SG1 (none)
Honeywell GPS Horiz.
Dilution of Position
____ GHHDOP_SG2 (none)
Honeywell GPS Horiz.
Dilution of Position

VDOP

____ GHVDOP_SG1 (none)
Honeywell GPS Vertical
Dilution of Position
____ GHVDOP_SG2 (none)
Honeywell GPS Vertical
Dilution of Position

HFOM

____ GHHFOM_SG1 (m)
Honeywell GPS Horiz.
Figure of Merit
____ GHHFOM_SG2 (m)
Honeywell GPS Horiz.
Figure of Merit

VFOM

____ GHVFOM_SG1 (m)
Honeywell GPS Vertical
Figure of Merit
____ GHVFOM_SG2 (m)
Honeywell GPS Vertical
Figure of Merit

Flight:

Temperatures

Ambient Temperature

- ☒ AT1 (degC)
Ambient Temperature,
Top Left
- ☐ AT2 (degC)
Ambient Temperature,
Bottom Right
- ☒ AT3 (degC)
Ambient Temperature,
Top Right
- ☐ AT4 (degC)
Ambient Temperature,
Bottom Left
- 3 ☒ ATX (degC)
Ambient Temperature,
Reference

Total Temperature

- ☒ TT1 (degC)
Total Temperature, Left
Top
- ☐ TT2 (degC)
Total Temperature,
Right Bottom
- ☒ TT3 (degC)
Total Temperature, Left
Bottom
- ☒ TT4 (degC)
Total Temperature,
Right Top
- 3 ☒ TTX (degC)
Total Temperature
Reference

Dewpoint Temperature

- ☒ DP1C (degC)
Dew Point Temperature,
Left
- ☒ DP1R (degC)
Dew Point Temperature,
Right
- ☐ DP1X (degC)
Dew Point Temperature,
Reference
- ☒ DPL (degC)
Left Dew/Frost Point
Temperature
- ☒ DPR (degC)
Right Dew/Frost Point
Temperature
- R ☒ DPX (degC)
Dew/Frost Point
Temperature, Reference

Air Temperature

- ☒ ADCSAT (degC)
DADC Static Air
Temperature
- ☒ ADCTAT (degC)
DADC Total Air
Temperature

Potential Temperature

- ☒ THETA (K)
Potential Temperature
- ☒ THETA E (K)
Equivalent Potential
Temperature
- ☒ THETA V (K)
Virtual Potential Temperature

Hygrometers

- ☐ BCRYO (volts)
CR-2 Hygrometer
Balance
- ☐ CRYO (degC)
CR-2 Hygrometer
- ☐ CRYOC (degC)
CR-2 Hygrometer,
corrected
- ☐ PCRYO (mb)
CR-2 Hygrometer
Pressure

Humidity

- ☐ RHODL (g/m3)
Absolute Humidity,
T-Electric Left
- ☐ RHODR (g/m3)
Absolute Humidity,
T-Electric Right
- ☒ RHUM (%)
Relative Humidity

Mixing Ratio

- ☐ MR (g/kg)
Mixing Ratio, T-Electric

Ambient Water Vapor Pressure

- ☐ EDP (mb)
Ambient Water Vapor
Pressure, Reference

$\hookrightarrow > 100\%$
2029Z
when leveling out
for FL after climb

$\hookrightarrow$ T probes quicker to
respond

DPR slower to respond than

DPL but L steps ≈ -45

DPR $\approx 2^\circ\text{C}$ warmer than AT3
but DPR C corrects for supersaturation
 $> 100\%$

AT1 $\approx \frac{1}{2}^\circ\text{C}$ colder than 3 + 4

t/o: 21959
Ind: Z 0307

2 tapes
905rf07a & b, ads

N49RF
Variable Checkoff List

Flight: 090814N 2
Plaherty/Williams

Jackie Almeida

Pressures

Dynamic Pressure

- ☒ QC1C (mb)
- ☐ Corrected Dynamic Pressure, Left
- ☒ QC1M (mb)
- ☐ Left Raw Dynamic Pressure
- ☒ QC2C (mb)
- ☐ Corrected Dynamic Pressure, Right
- ☒ QC2M (mb)
- ☐ Right Raw Dynamic Pressure
- ☒ QCX (mb)
- ☐ Raw Dynamic Pressure, Reference
- ☒ QCXC (mb)
- ☐ Corrected Dynamic Pressure, Reference

Static Pressures

- ☒ PS1C (mb)
- ☐ Corrected Static Pressure, Top Fuselage
- ☒ PS1M (mb)
- ☐ Raw Static Pressure, Top Fuselage
- ☒ PS2C (mb)
- ☐ Correct'd Static Pressure, Bottom Fuselage
- ☒ PS2M (mb)
- ☐ Raw Static Pressure, Bottom Fuselage
- ☒ PSX (mb)
- ☐ Raw Static Pressure, Reference
- ☒ PSXC (mb)
- ☐ Corrected Static Pressure, Reference

Surface Pressure

- ☒ PSURF (mb)
- ☐ Calculated Surface Pressure

Cabin Pressure

- ☒ PCAB (mb)
- ☐ Cabin Pressure

Horizontal Wind Direction

- ☒ IWD (deg) *- spike 08159*
- ☐ Horizontal Wind Direction (IRS)
- ☒ IWD_PITR (deg) *- spike 0823:10*
- ☐ Horizontal Wind Direction (IRS)
- ☒ WD (deg) *- spikes*
- ☐ Horizontal Wind Direction

Horizontal Wind Speed

- ☒ IWS (m/s)
- ☐ Horizontal Wind Speed (IRS)
- ☒ IWS_PITR (m/s)
- ☐ Horizontal Wind Speed (IRS)
- ☐ WS (m/s)
- ☐ Horizontal Wind Speed
- ☐ North/South Component
- ☒ VI (m/s)
- ☐ Wind Vector, North Component
- ☐ East/West Component
- ☒ UI (m/s)
- ☐ Wind Vector, East Component

Vertical Winds

- ☒ WI (m/s)
- ☐ Wind Vector, Vertical Gust Component

UTAN/URAD Winds

- ☒ UX (m/s)
- ☐ Wind Vector, UTAN
- ☒ Longitudinal Component
- ☐ VY (m/s)
- ☐ Wind Vector, Lateral Component URAD

Attack (compare to pitch)

- ☒ AP1 (mb)
- ☐ Left Vertical Differential Pressure
- ☒ AP2 (mb)
- ☐ Right Vertical Differential Pressure
- ☒ DAP1 (mb)
- ☐ Left Raw Dynamic Attack Pressure
- ☒ DAP2 (mb)
- ☐ Right Raw Dynamic Attack Pressure
- ☒ ADCAOA (deg)
- ☒ Air Data Computer Attack Angle
- ☒ AKRD1 (deg)
- ☒ Attack Angle, Left Side
- ☒ AKRD2 (deg)
- ☐ Attack Angle, Right Side
- ☒ ATTACK (deg)
- ☐ Attack Angle, Reference

Sideslip (compare to roll)

- ☒ BP1 (mb)
- ☐ Top Horizontal Differential Pressure
- ☒ BP2 (mb)
- ☐ Bottom Horizontal Differential Pressure
- ☒ DBP1 (mb)
- ☐ Top Raw Dynamic Slip Pressure
- ☒ DBP2 (mb)
- ☐ Bottom Raw Dynamic Slip Pressure
- ☒ SSDF1 (deg)
- ☐ Sideslip Angle, Diff. Pressure, Top
- ☒ SSDF2 (deg)
- ☐ Sideslip Angle, Diff. Pressure, Bottom
- ☒ SSRD1 (deg)
- ☐ Sideslip Angle, Top
- ☒ SSRD2 (deg)
- ☐ Sideslip Angle, Bottom
- ☒ SSLIP (deg)
- ☐ Sideslip Angle, Reference

AP1 & 2 mb ↑ than AD

Flight:

Groundspeeds

- ☒ GHGSF_SG1 (m/s)
Honeywell GPS Ground Speed
- ☒ GHGSF_SG2 (m/s)
Honeywell GPS Ground Speed
- ☒ GPGSPD (m/s)
Collins GPS Ground Speed
- ☒ GSF (m/s)
Inertial Ground Speed
- ☒ GSF_PITR (m/s)
Inertial Ground Speed

East/West Component

- ☒ GHVEW_SG1 (m/s)
Honeywell GPS Ground Speed Vector E/W
- ☒ GHVEW_SG2 (m/s)
Honeywell GPS Ground Speed Vector E/W
- ☒ GPVEW (m/s)
Collins GPS Ground Speed Vector E/W
- ☒ VEW (m/s)
Inertial Ground Speed Vector E/W
- ☒ VEW_PITR (m/s)
Inertial Ground Speed Vector E/W
- ☒ XVEWC (m/s)
GPS-Correct'd Inertial Ground Spd Vector E/W

North/South Component

- ☒ GHVNS_SG1 (m/s)
HnyWll GPS Grnd Spd Vector, Nrth/Sth Component
- ☒ GHVNS_SG2 (m/s)
HnyWll GPS Grnd Spd Vector, Nrth/Sth Component
- ☒ XVNSC (m/s)
GPS-Correct'd Inertial Ground Spd Vector, North Component

Vertical Acceleration

- ☒ ACINS (m/s²)
Aircraft Vertical Acceleration
- ☒ ACINS_PITR (m/s²)
Aircraft Vertical Acceleration

Vertical Velocity

- ☒ GHVZI_SG1 (m/s)
HnyWll GPS Comp'd aircraft Vert. Velocity
- ☒ GHVZI_SG2 (m/s)
HnyWll GPS Comp'd aircraft Vert. Velocity

- ☒ GPVSPD (m/s)
Collins GPS Comp'd Aircraft Vertical Velocity
- ☒ VSPD (m/s)
IRS-Computed Aircraft Vertical Velocity
- ☒ VSPD_PITR (m/s)
IRS-Computed Aircraft Vertical Velocity

- ☒ WP3 (m/s)
Damped Aircraft Vertical Velocity
- ☒ WP3_PITR (m/s)
Damped Aircraft Vertical Velocity

Airspeeds

- ☒ ADCCAS (m/s)
- ☒ DADC Computed Airspeed
- ☒ IAS (Kts)
- ☒ Aircraft Indicated Airspeed
- ☒ ADCTAS (m/s)
- ☒ DADC True Airspeed

- ☒ TAS1 (m/s)
Aircraft True Airspeed #1
- ☒ TAS2 (m/s)
Aircraft True Airspeed #2
- ☒ TASHC (m/s)
Aircraft True Airspeed, Humidity Corrected
- ☒ TASX (m/s)
Aircraft True Airspeed, Reference

Mach

- ☒ ADCMACH (none)
- ☒ DADC Mach Number
- ☒ MACH (none)
- ☒ Aircraft Mach Number
- ☒ XMACH2 (none)
Aircraft Mach Number Squared

spikes
2 hrs sp. kep
@215958-220002Z

spike @ 2159-2200Z

use ①

PSIC ≈ 1.5 mb lower than PSJ

QC2 ≈ 1.5 mb lower than QC1

but no stair steps or spikes

→ AP2 ≈ 1.5 mb $\downarrow$ than API

★ PITCH - PIR spike down to 0° and back up from 215959 - 220003 Z

API does not follow trend (flat lines) of AP2 from 230731 - 230736 Z
-- effects DAP (smooths spike) + AKRD

→ but API follows ADCAOA trend better than AP2

→ so does G1 + GSF - SG2 and GSF - PIR

but GSF has more variation ($\pm$ larger range than other G round speeds)

HG232 ALT spikes 2048 - 2054 Z - change to GPG

N49RF AVAPS DropSonde Log

Project: 905 Flight ID: 080814N2 Flt Dir: J. WILLIAMS

Mission: WXWXA TD2 Flight #: RF7 Status: Sys 1 OK Sys 2 OK Launcher S/N: 2

Drop #	Sonde Serial Number	Chn. #	Time (Zulu)	Press. offset	Winds time	Operator Initials	Comments /Status/ Failure Reason	\$	GOOD ☒
1	085 119 033	1/5	20:52:39	Ø	0:03	JG/CL		PHX HRD	✓
2	084 419 130	1/5	21:33:58	Ø	3	JG/CL		"	✓
34	084 419 123	1/5	22:24:37	Ø	3	JG/CL		"	✓
43	084 419 027	2/6	22:09:55	Ø	3	JG/CL	Frgs mis-matched no data on RS good on LS		✓
5	085 119 030	2/6	22:40:49	Ø	4	JG/CL	RS lost ALTITUDE LS OK		✓
6	083 259 087	1/5	22:49:03	Ø	3	CL/JG			✓
78	084 429 023	8	23:08:42	0	3	CL			✓
87	084 919 090	7	22:58:56	Ø	3	CL	no GPS on RS REBOOT RS		✓
9	083 219 007	1/5	23:24:14	Ø	—	JG/CL	FAST FALL		✓
10	085 119 027	2/6	23:29:03	0	2	JG/CL			✓
11	083 259 080	8/4	23:39:33	Ø	2	JG/CL	PROB w/ch 3 NO GPS ^{ANALOG USED CH4}		✓
12	084 429 016	1/5	23:55:53	Ø	2	JG/CL			✓
13	084 919 172	4/8	00:09:15	Ø	5	JG/CL			✓
14	084 419 108	2/5	00:23:35	Ø	4	JG/CL	Intermittent winds		✓
15	084 919 140	1/8	00:35:09	Ø	2	JG/CL			✓
16	083 259 182	4/5	00:45:25	Ø	2	JG/CL	INTERMITTANT WINDS		✓
17	091 459 080	2/7	00:54:33	Ø	2	JG/CL			✓
18	084 919 049	1/8	01:01:00	Ø	2	JG/CL			✓
19	083 259 052	4/5	01:19:14	Ø	3	JG/CL			✓
20	084 419 111	2/8	01:33:28	Ø	2	"			✓
21									
22									
23									
24									
25									
26									
27									
28									
29									
30									
31									
32									
33									

\$ Codes A = AOC N = NHC/NWS H = HRD OW = NESDIS _____ = _____ = _____

Flight ID: 090814N2

Flight Director:

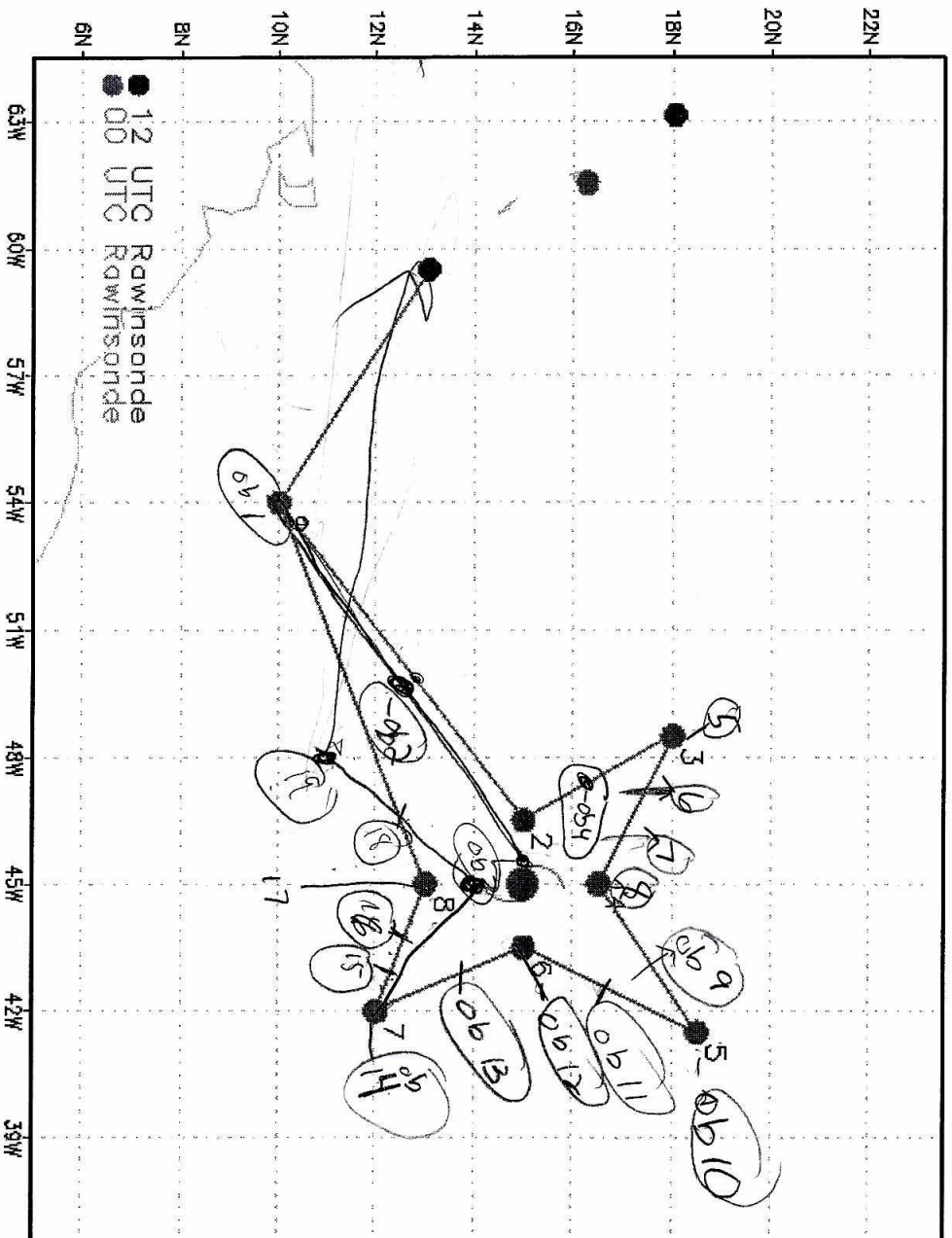
Flaherty/Williams

Mission ID: W1XW XA-T1

Storm/Track:

Pg ____ of ____

Ch. #	Drop #	Sonde ID	Drop Time (UTC)	Lat (°N)	Lon (°W)	Wx Cond.	L5/R5	SFC Prs (mb)	Ob #	R5 Lowest Winds (Ht, Ws, Wd)	L5 Lowest Winds (Ht, Ws, Wd)	Sent Time (UTC)
1	1	085119033	205239	1003	5355	SET 24/KC						
1	2	9130	213357	12 46	49 24	SET AC/KU						
6	3	9027	22045	1505	4536		L5					
1	4	9123	222436	1630	4660							
2	5	9036	224050	1800	4811		L5					
1	6	9087	224902	1730	4720							
7	7	9090	225858	17	4622		L5 L5					
8	8	9023	230841	16.5	45.0		L5					
1	9	FAST FAL	232441				L5					
2	10	9027	232900	1750	42 42		RS					
4	11	9080	233933	1814	4135							
1	12	9016	235554	1627	4241							
4	13	9172	000915	14 56	43 27							
2	14	9108	002332	13 21	42 40	LOST	W	NDS				from
4	15	9140	003516	12 04	42 13							
4	16	9182	004524	1251	43 16							
2	17	9080	005431	13 32	44 17							
1	18	9049	010059	4501	4501	213 57						
4	19	9052	011915	4645	4645	1216						
2	20	9111	013327	11N	4809W							



GRADS: COLA/IGES

2009-08-14-11:27

3.1

(3.2

3 hrs - 6 min

3 hrs 12 min

57	.0	6
58	.0	
59	.0	
00	[.0]	
01	.0	
02	.0	
03	1	6
04	.1	
05	.1	
06	[.1]	
07	.1	
08	.1	
09	.2	6
10	.2	
11	.2	
12	[.2]	
13	.2	
14	.2	
15	.3	6
16		
17	[.3]	
18		
19		
20	.3	

15-20

3
845678

901234 7

567890 .8
123

21 22 23 = 4
24 25 26 = 4
27 28 29 = 5
30 31 32 = 5
30 36

MISSION PLAN:

Prepared by the Hurricane Research Division File: current1.ftk

Aircraft: N49RF Altitude: FL410-450 Proposed takeoff: 14/1600Z

TRACK DISTANCE TABLE

#	LAT (d m)	LON (d/m)	RAD/AZM (nm/dg)	LEG (nm)	TOTAL (nm)	TIME (h:mm)
0	BARBADOS			0.	0.	0:00
1	10 00	54 00		372.	372.	0:51
2	15 00	46 30		533.	905.	2:05
3	18 00	48 30		214.	1119.	2:35
4	16 30	45 00		220.	1339.	3:06
5	18 30	41 30		234.	1573.	3:39
6	15 00	43 30		240.	1813.	4:12
7	12 00	42 00		201.	2013.	4:40
8	13 00	45 00		186.	2199.	5:07
9	10 00	54 00		560.	2759.	6:24
10	BARBADOS			372.	3131.	7:40

15N 45.5W
45.5 48.5
14N 45W
9 11N 48W

16.5 47

18
17 30
16 00
16 30

4830
4720
4610
4500
90

1730 4315

1730

1640

wp10 Drop 6 1730 4720
wp11 Drop 7 1700 4610